GEODESIGN INC

CLEANUP ACTION REPORT

The Village at Evergreen

13800 to 14114 SE Mill Plain Boulevard

Vancouver, Washington

For

ROF Evergreen JV, LLC

June 13, 2008

Ecology VCP #: SW0915

GeoDesign Project: BonesConst-7-01

GEODESIGN INC

June 13, 2008

Washington State Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, Washington 98504-7775

Attention: Mr. Steve Teel, LHG

Cleanup Action Report
The Village at Evergreen
13800 to 14114 SE Mill Plain Boulevard
Vancouver, Washington
Ecology VCP #: SW0915
GeoDesign Project: BonesConst-7-01

On behalf of ROF Evergreen JV, LLC, GeoDesign, Inc. is pleased to submit this Cleanup Action Report for The Village at Evergreen located north of SE Mill Plain Boulevard between SE 136th Avenue and SE Hearthwood Boulevard in Vancouver, Washington (project site). Opus Northwest, LLC initially entered the project site into Ecology's VCP in October 2005, and it was assigned VCP Identification Number SW0714. Numerous investigations were completed under this VCP Identification Number, culminating in a Final Proposed Cleanup Action Plan that was approved by Ecology in an Opinion letter dated September 28, 2006 and supplemental correspondence. Opus Northwest, LLC subsequently sold the property to ROF Evergreen JV, LLC who re-entered the project site into the VCP in November 2007. The VCP identification number for the site is currently SW0915.

This report summarizes the final characterization and remedial activities conducted at the project site between March and May 2008. The data summarized in this report are currently being entered into Ecology's EIM, as required under WAC 173-340-840(5). Once Ecology has completed its review of this report, we respectively request Ecology to provide an Opinion on the completed cleanup actions. A completed "Request for Opinion Form" is enclosed. In our opinion, the data presented in this report warrant an Opinion of "No Further Action" for both soil and groundwater.

♦ ♦ ♦

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Please contact us if you have questions regarding this report.

Sincerely,

GeoDesign, Inc.

Craig W. Ware, L.G.
Principal Geologist

cc: Mr. Ron Skov, ROF Evergreen JV, LLC (via email only)
Ms. Michelle Limon, ATC Associates, Inc. (via email only)

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1.0 INTRODUCTION

This Cleanup Action Report has been prepared by GeoDesign, Inc. on behalf of ROF Evergreen JV, LLC for The Village at Evergreen located north of SE Mill Plain Boulevard between SE 136th Avenue and SE Hearthwood Boulevard in Vancouver, Washington (project site). The project site consists of approximately 51.5 acres and was formerly occupied by a small private airport. The location of the project site relative to surrounding physical features is shown on Figure 1. The general layout of the project site is shown on Figure 2.

2.0 PHYSICAL SETTING

2.1 SITE DESCRIPTION AND SURROUNDING LAND USE

The project site occupies nine tax lots in the northwest quarter of Section 35, Township 2 North, Range 2 East of the Willamette Meridian. The project site was formerly owned by the Olsen Family Trust and consisted of a small private airport, including a runway and 4 small-airplane hangar buildings (hangar buildings No. 1 through 4) containing 48 private hangar units, a small office building, and 8 privately leased buildings. All of the former facilities, with the exception of the runway, were demolished prior to cleanup activities.

Land use in the vicinity of the project site is primarily commercial and residential. The project site is bound on the north by commercial property (with SE First Street and residential property further north), to the east by commercial property and SE Hearthwood Boulevard (across which is more commercial property), to the south by SE Mill Plain Boulevard (across which is commercial and residential property), and to the west by SE 136th Avenue (across which is commercial property).

2.2 SITE GEOLOGY AND HYDROGEOLOGY

The project site is located in the east-central part of the Portland Basin physiographic province, which is bound by the Tualatin Mountains to the west and south and the Cascade Range to the east and north. The near-surface geologic unit is mapped as Quaternary gravel-size flood deposits. The unit consists of unconsolidated, sandy gravel with cobbles. The deposits contain stratified, fine- to coarse-grained, subrounded to rounded gravel in a coarse, sandy matrix. The unit was deposited by multiple catastrophic glacial floods associated with the late Pleistocene (15,500 to 13,000 years before present) Missoula Floods (Gannet and Caldwell, 1998; Phillips, 1987). The deposits have been formed into broad terraces composed of alluvial fans from stream and river channels entering the basin from the east highlands. The thickness of the gravel-size flood deposits in the vicinity of the project site is approximately 30 to 80 feet (Gannet and Caldwell, 1998).

Underlying the flood deposits is the Pliocene to Pleistocene Age (5 to 1.5 million years before present) Troutdale Gravel Aquifer, which consists of poorly to moderately consolidated, poorly graded, subrounded to rounded sand and gravel. The thickness of the gravel aquifer in the site vicinity is approximately 100 to 150 feet (Gannet and Caldwell, 1998).

Underlying the gravel aquifer is the Pliocene to Pleistocene Age (5 to 1.5 million years before present) Troutdale Formation "lower member," which consists of laminated, silty clay and micaceous sand. Thickness of the fine-grained member in the site vicinity is approximately 700 to 800 feet (Gannett and Caldwell, 1998).

The Troutdale Formation is underlain by the Miocene Age (20 to 10 million years before present) Columbia River Basalt Group, which is a series of basalt flows that originated from southeastern Washington and northeastern Oregon. The Columbia River Basalt Group is considered the geologic basement unit for this report.

Based on our review of well logs for wells completed within Section 35, Township 2 North, Range 2 East of the Willamette Meridian, the depth to groundwater in the area ranges from 64 to 188 feet BGS, with an average static water level of approximately 80 feet for wells completed to depths of approximately 100 feet BGS and 163 feet BGS for wells completed between 163 and 332 feet BGS. Many of the well logs for this section also identified a clay or clay and gravel layer with an average thickness of approximately 30 feet between depths of approximately 74 to 131 feet BGS. Topography suggests that the general directional flow of regional groundwater beneath the vicinity of the project site is to the south-southeast toward the Columbia River.

2.3 SITE SPECIFIC GEOLOGY AND HYDROGEOLOGY

Shallow subsurface soil conditions encountered at the project site during previous investigations and the recent cleanup actions described in this report generally correlate with the "near-surface" conditions described in the "Site Geology and Hydrogeology" section of this report (Section 2.2). Explorations completed during previous investigations included:

- Eighty-one shallow direct-push soil borings up to depths of approximately 20 feet BGS
- Nineteen shallow test pit explorations up to depths of approximately 12.5 feet BGS
- Three deep groundwater monitoring well borings completed using sonic drilling techniques to depths of approximately 178 feet BGS

The shallow subsurface soils at the project site generally consist of 1 to 5 feet of silt, sandy silt, or gravelly silt underlain by silty sand with varying amounts of gravel to the total depths explored. Many of the shallow explorations encountered silty sand with varying amounts of gravel from the surface to the total depths explored. The deep monitoring well borings (MW-1, MW-2, and MW-3) encountered 3 to 5 feet of silt; underlain by sand and/or gravel; underlain by silt and clay between approximately 93 and 125 feet BGS in MW-1, 107 and 147 feet BGS in MW-2, and 88 and 112 feet BGS in MW-3; underlain by sand and or gravel with varying amounts of cobbles to the total depths explored (178 feet BGS).

Unconfined groundwater was encountered in MW-1 at a depth of 168 feet BGS, in MW-2 at 171 feet BGS, and in MW-3 at a depth of 171 feet BGS. Perched groundwater was also encountered in MW-2 at 86 feet BGS on the silt and clay lenses penetrated between 87 and 97 feet just above the thick portion of the silt and clay aquitard. Perched water was not observed during the drilling of monitoring wells MW-1 and MW-3. The inferred unconfined groundwater flow direction beneath the project site based on historical groundwater monitoring data is consistently toward the south-southeast.

3.0 REGULATORY HISTORY

3.1 ORIGINAL DATABASE LISTINGS

The project site was identified on the ASTM supplemental EPA FINDS list, which is an inventory reference list and does not imply a release or recognized environmental condition at the project site. Additionally, two portions of the project site (former Robertson's Paint Shop and the former fueling area listed under Northwest Aircraft Supply, Inc.) are listed on several of Ecology's and EPA's environmental databases, as discussed below.

3.1.1 Former Robertson's Paint Shop

Ecology's CSCSL database includes the former Robertson's Paint Shop due to the suspected presence of VOCs in site soil. The address of the former paint shop was 14114 SE Mill Plain Boulevard. Most of the early documentation on file at Ecology pertaining to environmental issues at the project site focuses on this former business, as described below in Sections 3.1.1.1 through 3.1.1.4 of this report. Robertson's Paint Shop was apparently removed from the CERCLIS database based on the results of a preliminary site assessment completed in 1988.

3.1.1.1 Southwest Washington Health District Letter (March 14, 1984)

The Southwest Washington Health District sent a letter to Mr. Max Robertson of Robertson's Paint Shop on March 14, 1984 confirming Mr. Robertson's intent to repair the first of two settlement cells along the floor through which waste runoff collects prior to discharging to the underground tank. The settlement cells referred to in the letter were associated with a gutter system, all of which were located along the northern perimeter of the paint shop floor, and discharged waste runoff to an underground sump located in the northeast corner of the paint shop. The letter mentions that the chemicals used by Mr. Roberson contain highly toxic substances, including "polychlorinated hydrocarbons." The letter also requested that all waste be contained and removed by an approved method on a routine basis.

3.1.1.2 Ecology Inspection (April 1986)

On April 23, 1986, Ecology conducted an inspection of Robertson's Paint Shop during which it was determined that methylene chloride, along with other chemicals, was used at the facility. According to the Inspection Report, an approximate 1,500-gallon underground holding tank (approximately 8 feet in diameter and 8 feet high) was present in the northeast corner of the facility. During the time of the inspection, approximately 200 gallons of waste water was present in the tank. It was not determined during Ecology's interview with Mr. Robertson whether the tank had been previously emptied.

During the supplemental characterization activities completed in 2006, an approximate 8-foot-deep concrete sump was discovered in the northeast corner of Robertson's Paint Shop. It is likely that the underground tank described in the Inspection Report is the sump discovered in 2006.

3.1.1.3 Preliminary Assessment Report (April 1988)

On April 27, 1988, Ecology and Environment, Inc. submitted a Preliminary Assessment Report to EPA for Robertson's Paint Shop to identify potential public health and/or environmental hazards related to the site and evaluate if additional investigation is required. The Preliminary Assessment Report did not recommend any further remedial action under CERCLA/SARA.

3.1.1.4 Hazard Ranking of Robertson's Paint Shop (June 1988)

In June 1988, Ecology and Environment, Inc performed a Hazard Ranking of Robertson's Paint Shop. Ecology and Environment, Inc. calculated an HRS to assess the relative potential for the site to pose a threat to human health or the environment and possible inclusion on the National Priorities List. Based on the HRS, no further remedial action under CERCLA/SARA was recommended at Robertson's Paint Shop.

3.1.2 Ecology's UST Database Listing - Fueling Area

Ecology's UST database includes former NW Aircraft Supply, Inc., formerly located at 13910 SE Mill Plain Boulevard. According to Ecology's records, a UST between 5,000 and 9,999 gallons in size containing aviation fuel was reportedly installed on the property in 1995. Our research also indicated that two unleaded gasoline USTs were installed at the site in 1972 and 1978, but were later decommissioned by removal. Evidence of this former UST pit was identified during a geophysical survey completed during the Phase II investigation.

The aviation fuel UST included in Ecology's database was decommissioned by removal as described in Section 6.8.1 of this report. Additionally, during recent remedial excavation activities completed at this area (identified as Cleanup Action Area 3), evidence of the former UST pit associated with the two unleaded gasoline USTs (fill material used to backfill the tank cavity) was observed. As described in Section 6.8.1.1 of this report, it is likely that these two former USTs were the source of the petroleum-contaminated soil observed at Cleanup Action Area 3.

3.2 RECENT REGULATORY HISTORY

Opus Northwest, LLC initially entered the project site into Ecology's VCP in October 2005, and the project site was assigned VCP Identification Number SW0714. Ecology subsequently reviewed the Phase I and Phase II ESA reports (GeoDesign, 2005a and 2005b, respectively), and the initial Proposed Cleanup Action Plan (GeoDesign, 2005c). In January 2006, Ecology formally issued an Opinion Letter requesting that additional characterization be performed in order to meet the substantive requirements contained in MTCA and its implementing regulations. Ecology subsequently reviewed a Supplemental Characterization Work Plan (GeoDesign, 2006) that presented a supplemental scope of work to further characterize soil conditions in select areas of the project site to adequately address Ecology's concerns prior to the planned remedial actions. Ecology provided comments to the Supplemental Characterization Work Plan, by a letter dated April 5, 2006. URS Corporation (URS) subsequently implemented the scope of work presented in the Supplemental Characterization Work Plan and summarized the results in a report (URS, 2006a). The supplemental report, combined with a Groundwater Sampling Report that summarized the July 2005 and February 2006 groundwater monitoring and sampling events (URS, 2006b) addressed each of Ecology's comments and concerns in their January 2006 Opinion Letter.

Ecology reviewed the reports and in July 2006 requested a third round of groundwater sampling from the existing monitoring well network to include analysis for the full suite of constituents that had been analyzed in previous sampling events. URS conducted a subsequent groundwater monitoring and sampling event in August 2006 and presented the results in a Groundwater Monitoring and Sampling Report (URS, 2006c).

In September 2006, URS submitted a Final Proposed Cleanup Action Plan (URS, 2006d) that presented the proposed cleanup action plan for the project site. The Final Proposed Cleanup Action Plan was approved by Ecology in an Opinion letter dated September 28, 2006 and supplemental correspondence. In a September 28, 2006 letter, Ecology requested that one additional groundwater sampling event be performed at one site well (MW-2) between October and December 2006. URS conducted the groundwater monitoring and sampling event on MW-2 in November 2006 and presented the results in a Groundwater Monitoring and Sampling Report (URS, 2006e).

Opus Northwest, LLC subsequently sold the property to ROF Evergreen JV, LLC who re-entered the project site into the VCP in November 2007. The VCP identification number for the site is currently SW0915. GeoDesign subsequently conducted supplemental characterization activities at the project site in November 2007 prior to implementing the planned cleanup actions established in the Ecology-approved Proposed Final Cleanup Action Plan. The results of the November 2007 supplemental characterization activities are presented in a Supplemental Characterization Report (GeoDesign, 2008a).

Ecology reviewed the Supplemental Characterization Report (GeoDesign, 2008a) and formally issued an Opinion Letter, dated June 3, 2008, outlining analytical requirements for confirmation soil samples collected from the limits of remedial excavations in Cleanup Action Area 2 and Cleanup Action Area 6, groundwater monitoring and sampling from existing groundwater monitoring wells, as well as a recommendation to collect a groundwater sample from a domestic well apparently located down gradient of Robertson's Paint Shop at 13919 SE Mill Plain Boulevard in Vancouver, Washington.

GeoDesign reviewed the Opinion Letter and responded by electronic mail on June 3, 2008. In the response, we acknowledged that confirmation soil samples were analyzed for the constituents listed in the letter, except for chlorinated herbicides. Chlorinated herbicides were not detected in the previous characterization samples (GeoDesign, 2008b) and consequently, confirmation soil samples were not submitted for analysis of chlorinated herbicides. The response also noted several concerns regarding sampling the domestic groundwater well, including 1) the well is damaged and apparently filled with soil, 2) it is unknown whether or not groundwater quality has been compromised, and 3) the current property owner should repair the well and bring it into compliance with current regulations prior to sampling and then subsequently abandon the well. GeoDesign is currently researching the location of the well and will have further discussions with Ecology regarding potentially sampling the well. As indicated to Ecology, it is our opinion that the results of several groundwater sampling events from on-site wells coupled with the results of the confirmation soil sample results (which indicate that site impacts have been limited to the

upper 16.5 feet of property soil) support the conclusion that groundwater has not been impacted. The recently completed groundwater monitoring and sampling activities are discussed in Section 6.16 of this report.

3.2.1 Summary of Previous Investigations and Reports

As described in Section 3.2 of this report, several phases of investigation. In general, the investigations at the project site detected gasoline-, diesel- and heavy oil-range hydrocarbons and select metals (cadmium, chromium, and lead) in soil at concentrations exceeding MTCA Method A cleanup levels for unrestricted land use. Select VOCs, SVOCs, PAHs, and other metals were also detected in site soil, but at concentrations less than established MTCA Method A cleanup levels.

The results of the historical groundwater monitoring and sampling events indicate that regional groundwater beneath the project site is not impacted by site-related chemicals, including metals. Although certain total metals from representative groundwater samples were detected above laboratory MRLs, the concentrations do not exceed corresponding MTCA Method A cleanup levels, and the concentrations are consistent with naturally occurring regional groundwater background concentrations. Further, petroleum hydrocarbons, VOCs, PAHs and PCBs were not detected above laboratory MRLs in the grab groundwater sample collected from the perched zone during drilling of monitoring well MW-2.

The results of the previous investigations are summarized in the following reports, all of which have been provided to Ecology:

- Phase II Environmental Site Assessment, GeoDesign, November 2005
- Proposed Cleanup Action Work Plan, GeoDesign, December 2005
- Supplemental Characterization Report, URS, July 2006
- Groundwater Sampling Report, First Quarter 2006, URS, July 2006
- Groundwater Monitoring and Sampling Report, Third Quarter 2006, URS, August 2006
- Final Proposed Cleanup Action Plan, URS, September 2006
- Groundwater Monitoring and Sampling Report, Fourth Quarter 2006, URS, December 2006
- Supplemental Characterization, GeoDesign, March 2008

3.2.2 Cleanup Action Areas

A total of 10 cleanup action areas have been identified at the project site as a result of prior investigations and as identified during current remedial actions as described below.

After completion of the Phase II ESA in 2005, the following three cleanup action areas were identified in the initial Proposed Cleanup Action Plan:

- Cleanup Action Areas 1A, 1B, 1C, and 1D – Hangar buildings where isolated petroleum- and metals-impacted surface soil was identified.
- Cleanup Action Area 2 – Northeast corner of Robertson's Paint Shop where petroleum- and metals-impacted subsurface soil was identified.
- Cleanup Action Area 3 – Fueling Area where petroleum-impacted subsurface soil was identified.

After completion of the April and May 2006 supplemental characterization activities, the following two additional Cleanup Action Areas were identified and incorporated into the Ecology-approved Final Proposed Cleanup Action Plan:

- Cleanup Action Area 4 – Evergreen Flight Service where isolated metals-impacted surface soil was identified along the south side of the former paint booth.
- Cleanup Action Area 5 – Vancouver Chainsaw and Service where isolated petroleum-impacted surface soil was identified at the location of the formerly stored waste oil drums.

Additionally, as requested in Ecology's January 10, 2006 Opinion Letter, the Final Proposed Cleanup Action Plan included collecting confirmation soil samples at the following locations:

- Beneath the cistern, wastewater settlement cells and gutter system, catch basin and two heating oil ASTs near Robertson's Paint Shop when these features are removed. These areas were incorporated into Cleanup Action Area 2.
- Beneath the three ASTs near the Evergreen Flight Service building when they are removed. These AST areas are included in Cleanup Action Area 8.

The presence or suspected presence of several septic tanks and dry wells were identified during the 2008 supplemental characterization activities. Five septic tanks were positively identified and located at the project site and the potential presence of a sixth septic tank was suspected beneath the Aurora Avionics and Lights building. Six dry wells that were connected to the septic tanks were positively identified and located (one at Cleanup Action Area 2, two at Cleanup Action Area 3, two at Cleanup Action Area 4, and one at Cleanup Action Area 5), and two dry wells were suspected to be present at the Aurora Avionics and Lights building and at the Northwest Antique Aircraft Club building.

Since elevated hydrocarbons and metals were detected within the sediment in select dry wells during the 2008 supplemental characterization activities and in an effort to be consistent with Ecology's sampling criteria in their September 28, 2006 Opinion Letter, collection of confirmation soil samples from the sediment within each dry well, beneath each dry well after their removal, and beneath any piping associated with the septic systems were added to the Final Proposed Cleanup Action Plan.

After completion of the 2008 supplemental characterization activities, the following additional Cleanup Action Area was developed and added to the Ecology-approved Final Proposed Cleanup Action Plan:

- Cleanup Action Area 6 – Willamette Soaring Club where PAH-impacted subsurface soil was identified at the location of a former distribution box associated with the septic system.

During implementation of the planned cleanup actions at the project site, the conditions encountered were either incorporated into existing cleanup action areas or were developed into individual cleanup action areas. The following four additional Cleanup Action Areas were developed and addressed:

- Cleanup Action Area 7 – A drainage feature encountered just north of Hangar Building No. 2.

- Cleanup Action Area 8 – spilled paint formerly contained in a 55-gallon drum that was hidden within blackberry bushes east of Evergreen Flight Service building.
- Cleanup Action Area 9 – A dry well associated with the Aurora Avionics and Lights building.
- Cleanup Action Area 10 – A dry well associated with the Northwest Antique Aircraft Club building.

The locations of each Cleanup Action Area relative to the site layout are shown on Figure 2.

4.0 SITE REDEVELOPMENT PLANS

The design for the new construction at the project site has not been finalized; however, current design drawings call for mixed land use with commercial development and associated parking areas along the southern two-thirds of the property and residential development (single-family residences) along the northern one-third portion of the property.

5.0 REMEDIAL STRATEGY, OBJECTIVES, AND SCOPE OF WORK

5.1 REMEDIAL STRATEGY

The remedial strategy implemented at the project site (complete removal of impacted soil using excavation methods, with disposal off site) was selected based on the criteria defined in WAC 173-340-360, which include the nature and extent of contamination at the project site, the protectiveness of the implemented remedies, and the disadvantages of other alternatives considered. The remedial strategy implemented at the project site also fulfills the primary goal of the cleanup action, which is the elimination of unacceptable risk to human and ecological receptors.

5.2 REMEDIAL OBJECTIVES

The primary remedial objective for the project site is to collect and present adequate data so that Ecology has the information necessary to issue an Opinion of NFA upon submittal of this report.

5.3 SCOPE OF WORK

In order to meet the above objective, a scope of work was developed and completed to consist of two major cleanup action work tasks: pre-remedial excavation and remedial excavation work tasks. The specific scopes of work associated with each work task are summarized below.

5.3.1 Pre-Remedial Excavation Work Tasks

- Complete pre-demolition hazardous building materials abatement activities.
- Complete demolition activities of all existing structures (except the asphalt runway).
- Decommission by removal two remaining ASTs (three were previously removed prior to initiating cleanup actions).
- Decommission by removal one UST, dispenser, and associated underground piping
- Pump contents from a total of six septic tanks per WAC 173-218-050 prior to decommissioning.
- Decommission six septic tanks per WAC 173-218-050.
- Decommission by removal eight dry wells and underground piping associated with the septic systems.

5.3.2 Remedial Excavation Work Tasks

- Identify and segregate clean soil from contaminated soil using visual, sheen, and headspace vapor screening techniques.
- Remove and temporarily stockpile between 3,000 and 4,000 cubic yards of excess clean soil.
- Remove and transport approximately 1,340 tons of contaminated soil off-site to Hillsboro Landfill for disposal.
- Obtain more than 240 confirmation soil samples from initial and final limits of the remedial excavations and submit the soil samples to an analytical laboratory for chemical analysis.
- Obtain a total of 26 confirmation soil samples from temporarily stockpiled soil and submit the soil samples to an analytical laboratory for chemical analysis.
- Backfill remedial excavations with clean stockpiled soil and recycled concrete material from demolition activities and observe compaction.
- Obtain an additional round of groundwater samples from the existing monitoring well network and submit them to an analytical laboratory for chemical analysis.

6.0 CLEANUP ACTION WORK TASKS

6.1 OVERVIEW

The cleanup action work tasks presented in the scope of work were completed between March 15 and June 4, 2008. GeoDesign staff were present on a full-time basis during the cleanup action work tasks to observe and document field activities and conduct field screening on soil samples collected during the cleanup activities. Field screening was conducted to assist segregating the excess clean soil from impacted soil. A description of our field procedures is presented in Appendix A.

Prior to demolishing the on-site structures, Lake Oswego Insulation Company, Inc., a Washington State Certified hazardous materials abatement contractor, completed containing and removing all hazardous building materials from the Northwest Antique Aircraft Club, Vancouver Chainsaw and Sales, Evergreen Airfield Office, an apartment at Evergreen Flight Service, and Robertson's Paint Shop between March 18 and 31, 2008. Post-Abatement records are included in Appendix B.

After removal of the hazardous building materials, Elder Demolition of Portland, Oregon dismantled all of the aboveground structures, demolished the concrete floor slabs, and removed the remaining ASTs from the project site in March and April 2008. Recycling receipts are included in Appendix C.

Belfor Environmental, Inc. of Portland, Oregon, a Washington State licensed UST service provider, decommissioned by removal one 8,000-gallon aviation fuel UST located in Cleanup Action Area 3 on March 27, 2008. The disposal receipts are included in Appendix D.

The nonresidential septic systems identified at the project site are exempt from the UIC program under amended WAC 173-218-050. The contents of all encountered septic tanks were pumped (removed) by Ted-Dee Bear Septic Service prior to being decommissioned. Disposal receipts are

included in Appendix E.. Bones Construction of Aloha, Oregon, subsequently decommissioned all encountered septic tanks by demolishing the concrete lids and filling the void spaces with clean excess soil that was removed from Cleanup Action Area 3 and/or imported pea gravel.

Bones Construction also decommissioned all encountered dry wells at the project site, some of which were connected to septic tanks, by completely removing each dry well feature. The dry well features (constructed of concrete) were disposed at Hillsboro Landfill. The disposal receipts are included in Appendix F.

All remedial excavation activities were completed by Bones Construction. A total of approximately 1,340 tons of soil was removed from the project site. All of the impacted soil was transported off site to Hillsboro Landfill for disposal under two separate permit numbers. A total of approximately 1,140 tons of soil generated from Cleanup Action Areas 1A through 1D, portions of Cleanup Action Area 2, Cleanup Action Areas 3 through 7, and Cleanup Action Areas 9 and 10 were disposed at Hillsboro Landfill under Permit Number 100901WA. A total of approximately 200 tons of soil generated from the vicinity of the underground sump, wastewater settlement cells and gutter, and previously unknown drainage feature encountered at Cleanup Action Area 2 and from Cleanup Action Area 8 (identified as F002-listed waste) was disposed as non-dangerous waste through Ecology's Contained-In Policy at Hillsboro Landfill under Permit Number 101050WA. Copies of each permit are presented in Appendix G.

In general, soil excavated during the cleanup actions at each of the Cleanup Action Areas was temporarily stockpiled and sampled prior to transporting the soil to Hillsboro Landfill or reusing the soil as backfill material. The samples collected from the stockpiles were analyzed for the same analytical parameters as the confirmation soil samples collected from the limits of the excavation which generated the stockpiled soil. Soil samples were collected from the stockpiles according to the following frequency:

Bulk Cubic Yards of Soil	Minimum Number of Samples
0-30	1
31-100	3
101-500	5
501-1,000	7
1,001-2,000	10
>2,000	10 + 1 for each additional 500 cubic yards

If contaminants were detected in the stockpiled soil, even at concentrations less than MTCA Method A cleanup levels or Method B protective values, it was not reused on site as backfill material and was consequently transported off site to Hillsboro Landfill for disposal. Backfilling was conducted in accordance with the backfilling procedures outlined in Appendix A.

All trucks leaving the project site were free of lose soil on the exterior of the trucks. The soil was transported in accordance with applicable WSDOT regulations. As stipulated in the Contained-In determinations from Ecology (Ecology, 2008), the listed waste that was transported to Hillsboro Landfill as non-dangerous waste was covered during transport to the landfill; disposed directly

into a landfill cell; and not used as daily, intermediate, or final cover. Tonnage reports from Hillsboro Landfill, summarizing the weight of each truckload transported to their facility, are presented in Appendix B.

6.2 SAMPLE DESIGNATIONS

Each soil sample collected (from either the limits of the remedial excavations, from decommissioned septic systems, or from temporarily stockpiled material generated during decommissioning activities or remedial excavations), was given a unique sample designation. In general, the following sample designations were used:

- Samples collected from Cleanup Action Areas 1A through 1D have the prefix of the hangar building number it was collected from assigned to their designation, followed by the individual hangar unit number, as well as the depth below the ground surface.
- Samples collected from the limits of remedial excavations have the prefix of the specific Cleanup Action Area it was collected from assigned to their designation (with the exception of those confirmation soil samples collected from Cleanup Action Areas 1A through 1D), as well as the depth below the ground surface.
- Samples collected from dry well excavations have the prefix "drywell" assigned to their designation, as well as the depth BGS, while samples collected from the sediment within each dry well have the prefix "drywellseds" assigned to their designation.
- Samples collected beneath each AST have the prefix "AST" assigned to their designation, as well as the depth BGS.
- Samples collected beneath piping have the prefix "piping" assigned to their designation, as well as the depth BGS.
- Samples collected from the stockpiled material have the prefix "stockpile" assigned to their designation.
- Samples collected from the limits of overexcavated soil generally have "ox" assigned to their designation.

Additionally, samples were also collected from unique features identified at the project site, such as a french drain and associated drain line, and one bottomless septic tank. These samples were identified with the prefix "french drain," "drain line" and "septic" assigned to their designation.

In all cases, the depths below original ground surface at which the soil samples were collected (except those collected from stockpiled soil) are presented in Tables 2 through 49.

6.3 ANALYTICAL PROGRAM

Each sample submitted for chemical analysis was immediately placed in laboratory-supplied containers (unpreserved glass containers with Teflon-lined lids, unpreserved glass containers, glass containers preserved with hydrochloric acid, unpreserved VOA vials and VOA vials preserved with methanol and/or sodium bisulfate). The jars and glass containers were filled completely to lessen headspace in the containers. The field staff wore new disposable gloves during sample collection procedures. The samples were immediately placed in a cooler with ice and kept cool during transport to the analytical laboratory. Chain-of-custody procedures were followed during handling and transport of the samples. All soil and groundwater samples

collected from the project site were submitted to Apex Laboratories of Tigard, Oregon (who subcontracted select analysis to either SPL Laboratories of Houston, Texas or Environmental Science Corporation of Mt. Juliet, Tennessee) for one or more of the following chemical analysis:

- Hydrocarbon identification by Northwest Method NW-HCID
- Gasoline-range petroleum hydrocarbons by Northwest Method NWTPH-Gx
- Diesel- and heavy oil-range petroleum hydrocarbons by Northwest Method NWTPH-Dx
- VOCs by EPA Method 5035/8260B
- SVOCs by EPA Methods 8270C
- PAHs by EPA Method 8270M-SIM
- Total and dissolved metals (including arsenic, cadmium, chromium, lead, zinc, copper, and tin) by EPA Method 6020 (ICPMS)
- Total and dissolved mercury by EPA Method 7471A
- Hexavalent chromium by EPA Method 7196A
- Leachable cadmium by EPA Method 1312, SPLP
- Pesticides by EPA Method 8081A
- PCBs by EPA Method 8082

The analytical program implemented for the soil samples collected at each cleanup action area and the groundwater samples collected from the existing monitoring well network is presented in Table 1. Table 1 summarizes the number and location of soil confirmation soil samples and the methodology for each analysis. The information presented in Table 1 is based on the Ecology-approved Sampling and Analysis Plan for the Proposed Cleanup Action (URS, 2006a, Table 7) and has been modified to include Cleanup Action Areas 6 through 10 and a recent groundwater sampling event. The number of samples has been modified to reflect the actual number of confirmation soil samples collected from final excavation limits and additional analysis has been added due to recent characterization results related to a former drainage feature that was encountered at Cleanup Action Area 2 and spilled paint at Cleanup Action Area 8.

Laboratory analytical data that were collected during this investigation were reviewed to determine data quality and the findings of the data review are provided in Appendix H. The data review included verification that chain-of-custody protocols were followed, adherence by the laboratory to its QA program, and independent evaluation by GeoDesign of any data quality exception noted by the laboratory. Laboratory reports and chain-of-custody records are provided on the CD included in Appendix H. Based on our data quality review of the laboratory reports, the analytical data are of acceptable quality for their intended use.

6.4 FIELD SCREENING

A qualified field representative field screened soils during the cleanup action tasks using visual observations, PID measurements of soil headspace samples, and water sheen testing. If soil exhibited obvious indications of contamination (including staining, and/or odor), direct loading and transport to Hillsboro Landfill without field screening was implemented. In all other cases, the soil was temporarily stockpiled and characterized as described in Section 7.1. If visual observations, PID measurements, sheen results, or laboratory data indicated the presence of contaminated soil at the excavation limits, additional soil was removed by over-excavation until no field screening evidence of contamination was observed. Once the final extent of excavation

had been reached based on lack of field screening evidence, confirmation soil samples were collected at each cleanup action area. The final extent of any necessary over-excavation was determined based on the analytical results of subsequent confirmation sampling.

6.5 REGULATORY CRITERIA

All soil and groundwater analytical results were compared to the established MTCA Method A cleanup levels for unrestricted land uses and are presented in Tables 2 through 49. MTCA Method A cleanup levels represent values that Ecology has determined to be protective of human health and the environment. For those compounds that do not have established MTCA Method A cleanup levels, the results were compared to the established MTCA Method B protective values, considered protective of human health for soil ingestion under Standard Method B using the equations and default values provided in the MTCA cleanup regulation. They are not considered cleanup levels and are provided in the attached tables for comparison purposes only. The MTCA Method A cleanup levels and Method B protective values are sometimes referred to as screening levels or screening criteria in this report.

In most cases, the laboratory MRLs were less than corresponding screening levels (either MTCA Method A cleanup levels or Method B protective values). For those limited cases where the MRLs exceeded a corresponding screening level, the laboratory provided the MDLs. The MDLs are considered the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. The MDLs are noted where used in the summary tables and are less than the applicable screening criteria.

All soil samples submitted for analysis of total chromium were compared to the most stringent MTCA Method A cleanup level for chromium of 19 mg/Kg (the cleanup level for hexavalent chromium). All samples that exhibited a concentration of total chromium greater than 19 mg/Kg were subsequently analyzed for hexavalent chromium. Any detected hexavalent chromium was compared to the MTCA Method A cleanup level for hexavent chromium of 19 mg/Kg, while the total chromium result was compared to the MTCA Method A cleanup level for trivalent chromium (2,000 mg/Kg).

6.6 CLEANUP ACTION AREAS 1A, 1B, 1C, 1D - FORMER HANGAR BUILDINGS

Cleanup Action Areas 1A through 1D are shown on Figures 2 through 6. These areas included isolated surface stained areas within individual hanger units in Hangar Buildings Nos. 1 through 4. Chemical analytical results are summarized in Table 2.

6.6.1 Non-Excavation Activities

6.6.1.1 Demolition

Elder Demolition completed dismantling Hangar Buildings No. 1 through No. 4 between March 17 and March 28, 2008. During the dismantling process, select materials were salvaged and recycled. Concrete floor slabs present within some individual hangar units were demolished during the week of March 24, 2008. The concrete was recycled by crushing it on-site and re-using it as backfill material or to construct haul roads.

6.6.2 Excavation Activities

6.6.2.1 General

A total of 21 individual hangar units were identified in the Final Cleanup Action Plan (URS, 2006) as having petroleum- and metals-impacted surface soil, based on previous investigative results. Each of these hangar units were visited prior to demolition, and each stained area was located with a Trimble GeoXT professional submeter accuracy GPS receiver. After demolition, one additional stained area was identified at the former location of hangar unit No. 34 in Hangar Building No. 4. After demolition of the hangar buildings was complete, the petroleum- and metals-impacted soil at each location was removed by excavation and temporarily stockpiled on site before being transported to Hillsboro Landfill, as described in the field procedures outlined in Appendix A.

In general, the vertical depth of impacted soil identified in the hanger units was limited to the upper 1 foot of soil. However, impacted soil at one isolated area of Cleanup Action Area 1A, one isolated area of Cleanup Action Area 1B and four isolated areas of Cleanup Action Area 1D required overexcavation to depths up to 2 feet BGS. Confirmation soil samples were collected from the sidewalls (if greater than 1 foot in depth) and base of the final excavation limits and analyzed for the contaminants presented in Table 1 in accordance with the methodology presented in Table 1. Sample collection was conducted in accordance with the soil sampling procedures outlined in Appendix A. The final limits of the remedial excavations and confirmation soil sample locations for Cleanup Action Areas 1A through 1D are shown on Figures 3 through 6.

6.6.2.2 Field Screening Results

PID readings from the vapor headspace tests performed on confirmation soil samples submitted for chemical analysis ranged from 0.0 to 3.6 ppm. Visual or sheen evidence of contamination was not observed in any of the confirmation samples submitted for chemical analysis. The field screening results are summarized in Table 2.

6.6.2.3 Analytical Results

Diesel- and Heavy Oil-Range Hydrocarbons

Diesel-range hydrocarbons were quantitatively detected in soil samples H2-18(0.5-1.0), H4-37(0.5-1.0), Dup-2 (a duplicate sample collected at the location of H4-37[0.5-1.0]), H4-36 (0.5-1.0), H4-41 (0.5-1.0), and H4-34 (0.5-1.0) at concentrations less than the corresponding MTCA Method A cleanup level of 2,000 mg/Kg. Nonetheless, soil represented by these samples was removed during overexcavation activities and ultimately transported off site to Hillsboro Landfill for disposal. The results of the confirmation soil samples collected from the final limits of the remedial excavations indicate that the petroleum-impacted soil was successfully removed and transported to Hillsboro Landfill for disposal. Petroleum hydrocarbons were not detected in any of the remaining samples collected from Cleanup Action Areas 1A through 1D. Analytical results are summarized in Table 2.

Cadmium, Chromium, and Lead

Cadmium was detected in soil sample H4-37(0.5-1.0) at a concentration less than the corresponding MTCA Method A cleanup level of 2.0 mg/Kg. Total chromium was detected in several soil samples at concentrations ranging from 2.44 to 22.3 mg/Kg. Hexavalent chromium was not detected in any of the samples submitted for analysis. Therefore, the detected

concentrations of total chromium were compared to the corresponding MTCA Method A cleanup level for trivalent chromium of 2,000 mg/Kg. None of the detected concentrations of chromium exceeded the MTCA Method A cleanup level for trivalent chromium. Lead was detected in several soil samples at concentrations ranging from 1.46 to 94.0 mg/Kg. None of the detected concentrations of lead exceed the corresponding MTCA Method A cleanup level of 250 mg/Kg. Analytical results are summarized in Table 2.

6.6.2.4 Backfill Activities

Each of the remedial excavations in Cleanup Action Areas 1A through 1D were backfilled to the existing grade using clean excess soil that was removed from Cleanup Action Area 3. Backfilling was conducted in accordance with the backfilling procedures outlined in Appendix A.

6.7 CLEANUP ACTION AREA 2 - FORMER ROBERTSON'S PAINT SHOP

Cleanup Action Area 2 is shown on Figures 2, 7, and 8. This area included:

- One underground sump at the northeast corner of Robertson's Paint Shop
- The settlement cells and gutter system along the northern perimeter of the floor
- Two ASTs
- One cistern
- One dry well

Additionally, this area included a previously unknown drainage feature encountered adjacent to the underground sump beneath the concrete floor slab. The drainage feature consisted of a total of 14 empty 55-gallon drums that had holes cut in them prior to burial. The drums were stacked on their sides, three rows high (Figure 8). One of the 14 empty drums removed appeared "smashed" in between the stacked drums. It is possible this drainage feature was constructed and connected to the settlement cell and gutter system prior to installation of the underground sump.

The catch basin located southeast of Robertson's Paint Shop was located directly over an isolated dry well (identified as dry well-6). This dry well was not connected to a septic system and appeared to be designed to collect surface water runoff at this area of the project site. The dry well was constructed of two 6-foot perforated concrete collars measuring approximately 4.5 feet in diameter. The total depth of this dry well was approximately 15 feet.

6.7.1 Non-Excavation Activities

6.7.1.1 Pre-demolition Abatement

Lake Oswego Insulation Company, Inc. completed containing and removing all hazardous building materials from Robertson's Paint Shop between March 21 and 25, 2008. Hazardous building materials included ACMs, mercury-containing lamps, and PCB ballasts. The ACMs were transported to Hillsboro Landfill for disposal, and the mercury containing lamps and PCB ballasts were transported to Earth Protection Services, Inc. for recycling. Disposal receipts and certificates of recycling are presented in Appendix B.

6.7.1.2 Demolition

Elder Demolition completed dismantling Robertson's Paint Shop between March 31 and April 4, 2008. During the dismantling process, select materials were salvaged and recycled. The concrete floor slab within the building was demolished during the week of April 4, 2008. The concrete rubble from the floor demolition was recycled by crushing it on site and reusing it as backfill material or to construct haul roads. The gutter and settlement cells located along the northern perimeter of the floor were also removed by Elder Demolition during the week of April 4, 2008. The concrete rubble generated during demolition of the gutter and settlement cells was transported to Hillsboro Landfill for disposal.

6.7.1.3 AST Removal

Elder Demolition removed one remaining 275-gallon AST (identified as AST-2) located west of Robertson's Paint Shop during the week of March 31, 2008. This AST was empty and was transported with other scrap metal to Quantum Resource Recovery Inc., of Beaverton, Oregon for recycling. A copy of the recycling receipt is presented in Appendix C. The other AST (identified as AST-1) formerly located southeast of Robertson's Paint Shop was removed prior to beginning demolition/remedial work.

6.7.1.4 Dry Well Decommissioning

Bones Construction decommissioned the entire dry well (identified as dry well 6) by removal on March 20, 2008. No liquid or sludge was observed within the dry well. Coarse rounded drain rock was observed surrounding the dry well during the decommissioning activities. The concrete rubble generated during the decommissioning activities was recycled by crushing on site and reusing it as backfill material or to construct haul roads.

6.7.1.5 Sump Removal

Bones Construction removed the entire sump located in the northeast corner of Robertson's Paint Shop on April 21, 2008. The sump was dry and empty prior to removal. The concrete rubble generated during decommissioning of the sump was transported to Hillsboro Landfill on May 23, 2008, for disposal.

A 55-gallon open top drum exposed to the elements and connected to the sump via an underground pipe was also removed by Bones Construction on April 8, 2008. This drum appeared to contain rain water. The liquid contents in this drum will be solidified and transported to Hillsboro Landfill for disposal at a later date. The concrete rubble generated during removal of the sump was transported off site to Hillsboro Landfill for disposal.

6.7.1.6 Drainage Feature Removal

Bones Construction removed the drainage feature on April 8, 2008. Upon removal, the empty drums were temporarily stored on 6-mil plastic. The drums were heavily rusted and in poor condition upon removal. After consolidating the residual soil encountered in several of the drums into one new 55-gallon drum (as suggested by Ecology), the empty drums were transported off-site to Hillsboro Landfill for disposal.

6.7.1.7 Disposal of Listed Waste - Contained Out Determination

GeoDesign reported the discovery of the previously unknown drainage feature to Ecology and coordinated characterization and disposal activities with Mr. Steve Teel and Ms. Kaia Petersen of Ecology's Hazardous Waste and Toxics Reduction Program. Based on the characterization results (GeoDesign, 2008a), Ecology considered the soil surrounding the former drainage feature as "F002-listed dangerous waste." Ecology subsequently assigned the project site EPA I.D. # WAH 000 032 953.

GeoDesign requested written approval from Ecology to dispose the F002 listed dangerous waste as non-dangerous waste using Ecology's "Contained-In" policy. Ecology reviewed the information submitted with the written request and determined that the soils contain F002-listed dangerous waste constituents at concentrations that did not warrant management as dangerous wastes (Ecology, 2008). Therefore, Ecology did not require disposal of these soils as listed wastes at a permitted TSD facility provided the criteria outlined in their Contained-In Determination letter (Ecology, 2008) was met.

6.7.2 Excavation Activities

6.7.2.1 General

The soil surrounding the former sump was identified in the Ecology-approved Final Proposed Cleanup Action Plan as having metals (cadmium and chromium) impacts only. However, soil sampling and analysis conducted to characterize soil surrounding the sump and newly-discovered drainage feature, identified additional contaminants, including petroleum hydrocarbons (that were not fuel related), VOCs, SVOCs, PAHs, and pesticides (GeoDesign, 2008a). Therefore, as suggested by Ecology, the confirmation soil samples collected from the limits of the remedial excavations associated with the gutter and settlement cells and sump and drainage feature were amended to include analysis for these contaminants, as presented in Table 1. Although PCBs were not detected in the characterization soil samples collected from beneath the sump during the previous investigations or in the characterization soil sample collected immediately beneath the removed drainage feature, Ecology verbally requested PCB analysis due to the reported historical presence of PCBs in the liquid formerly contained in the sump.

Excavation activities in Cleanup Action Area 2 ultimately resulted in five excavations. One remedial excavation ultimately resulted from the removal of the sump and drainage feature at the northeast corner of Robertson's Paint Shop. Additionally, remedial excavations were also completed beneath the gutter and settlement cells located along the northern wall of the former paint shop, beneath the removed ASTs, and beneath the dry well. The final limits of these excavations are shown on Figures 7 and 8.

After demolition activities were complete, the impacted soil associated with Robertson's Paint Shop was removed by excavation and temporarily stockpiled on site. Soil samples were collected from the stockpiles for characterization and disposal profiling purposes (GeoDesign, 2008a). The samples collected from the stockpiles were analyzed for the same analytical parameters as the confirmation soil samples collected from the limits of the excavation which generated the stockpiled soil. Confirmation soil samples collected from the final limits of the remedial excavations and during the dry well decommissioning activities, as well as those collected

beneath the removed ASTs and cistern were analyzed for the constituents presented in Table 1 in accordance with the methodology presented in Table 1. Excavation and sample collection was conducted in accordance with the field procedures outlined in Appendix A.

In general, the area beneath the sump and the northern portion of the drainage feature required overexcavation to a maximum depth of approximately 12.5 feet BGS, while the area beneath the southern portion of the drainage feature required overexcavation to a maximum depth of approximately 14.5 feet BGS. The vertical depth of the excavation beneath the gutter and settlement cells ranged from approximately 3 to 4.5 feet BGS. The vertical depth of excavation beneath the ASTs ranged from 0.75 foot to 4.0 feet BGS. Confirmation soil samples were collected from the sidewalls (if greater than 1 foot in depth) and the base of the final excavation limits. The final limits of the remedial excavations and confirmation soil sample locations for Cleanup Action Area 2 are shown on Figures 7 and 8.

6.7.2.2 Field Screening Results

PID readings from the vapor headspace tests performed on confirmation soil samples submitted for chemical analysis ranged from 0.0 to 1.2 ppm. No visual or sheen evidence of contamination was observed in any of the confirmation samples submitted for chemical analysis. The field screening results are summarized on Table 3.

6.7.2.3 Analytical Results

Gasoline-, Diesel- and Heavy Oil-Range Hydrocarbons

Diesel-range hydrocarbons were qualitatively detected in soil sample CAA-2-13(8.0-8.5). Soil represented by this sample was removed during overexcavation activities and ultimately transported off site to Hillsboro Landfill for disposal. Heavy oil-range hydrocarbons were qualitatively detected in soil samples CAA-2-23(11.0-11.5), CAA-2-24(10.5-11.0), CAA-2-26(12.5-13.0), and CAA-2-7(2.0-2.5). The laboratory estimated the heavy oil-range hydrocarbons detected in samples CAA-2-23(11.0-11.5), CAA-2-24(10.5-11.0), and CAA-2-26(12.5-13.0) at concentrations less than the corresponding MTCA Method A cleanup level of 2,000 mg/Kg. Nonetheless, soil represented by all four of these samples was also removed during overexcavation activities and ultimately transported off site to Hillsboro Landfill for disposal. The laboratory notes that the hydrocarbons detected in these samples were not fuel related, but are associated with a paraffin wax. The results of the confirmation soil samples collected from the final limits of the remedial excavations indicate that the petroleum-impacted soil was successfully removed and transported to Hillsboro Landfill for disposal. Petroleum hydrocarbons were not detected in any of the remaining confirmation soil samples. Analytical results are summarized in Table 3.

VOCs

No more than seven VOCs were detected in soil samples CAA-2-19(8.5-9.0), CAA-2-23(11.0-11.5), CAA-2-25(10.0-10.5), CAA-2-26(12.5-13.0), Stockpile-6, and Stockpile-26. However, only the concentration of methylene chloride detected in sample CAA-2-19 (8.5-9.0) exceeded the corresponding MTCA Method A cleanup level of 20 µg/Kg. Nonetheless, soil represented by each of these samples was removed during overexcavation activities and ultimately transported off site

to Hillsboro Landfill for disposal. The results of the confirmation soil samples collected from the final limits of the remedial excavations indicate that the VOC-impacted soil was successfully removed and transported to Hillsboro Landfill for disposal. VOCs were not detected in any of the remaining confirmation soil samples. Analytical results are summarized in Table 4.

SVOCs

The SVOCs benzylbutyl phathalate and/or bis(2-ethylhexyl)phthalate were quantitatively detected in soil samples CAA-2-7(2.0-2.5), CAA-2-10(1.5-2.0), CAA-2-14(4-4.5), CAA-2-19(8.5-9.0), CAA-2-23(11.0-11.5), CAA-2-24(10.5-11.0), and CAA-2-26(12.5-13.0). Neither of these detected SVOCs exceeded the corresponding MTCA Method B protective values of 16,000,000 µg/Kg and 71,000 0181 µg/Kg, respectively. Nonetheless, soil represented by these two samples was removed during overexcavation activities and ultimately transported off site to Hillsboro Landfill for disposal. The results of the confirmation soil samples collected from the final limits of the remedial excavations indicate that the SVOC-impacted soil was successfully removed and transported to Hillsboro Landfill for disposal. SVOCs were not detected in any of the remaining confirmation soil samples. Analytical results are summarized in Table 5.

PAHs

One PAH, naphthalene, was detected in soil sample CAA-2-8(2.5-3.0) at a concentration less than the corresponding MTCA Method A cleanup level of 5,000 µg/Kg. Three PAHs, including fluoranthene, phenanthrene, and pyrene were detected in soil sample Drywell-6 (19.5-20). Ecology has not established a screening level for phenanthrene. Neither fluoranthene nor pyrene was detected at concentrations exceeding the corresponding MTCA Method B protective values of 3,200,000 µg/Kg and 2,400,000 µg/Kg, respectively. Nonetheless, soil represented by each of these samples was removed during overexcavation activities and ultimately transported off site to Hillsboro Landfill for disposal. The results of the confirmation soil samples collected from the final limits of the remedial excavations indicate that the PAH-impacted soil was successfully removed and transported to Hillsboro Landfill for disposal. PAHs were not detected in any of the remaining confirmation soil samples. Analytical results are summarized in Table 6.

Metals

Several metals, including arsenic, cadmium, chromium, copper, lead, zinc, and mercury were detected in the confirmation soil samples submitted for analysis. Confirmation soil samples collected from the final limits of the excavations with total chromium detected at concentrations greater than the most conservative MTCA Method A cleanup level for hexavalent chromium (19 mg/Kg), were submitted for analysis of hexavalent chromium. Hexavalent chromium was only detected in sample CAA-2-6(2.0-2.5) at a concentration less than the MTCA Method A cleanup level of 19 mg/Kg. The total chromium detected in the confirmation soil samples was less than the corresponding MTCA Method A cleanup level of 2,000 mg/Kg. No other metals concentrations, with the exception of cadmium, were detected in confirmation soil samples collected from the final limits of the excavations above corresponding MTCA screening levels. The analytical results are summarized in Table 7.

Confirmation soil sample CAA-2-22(10.5-11.0), collected from the final base of the excavation associated with the sump and drainage feature and CAA-2-28(4.5-5.0), collected from the final base of the excavation associated with the gutter and settlement cells, exhibited the highest

cadmium concentrations of 7.72 mg/Kg and 6.37 mg/Kg, respectively, which exceed the MTCA Method A cleanup level of 2.0 mg/Kg, but not the Method B protective level of 80.0 mg/Kg. Because the MTCA Method A cleanup level is based on protection of groundwater for drinking water use, the SPLP procedure in WAC 173-340-747(7) for samples CAA-2-22(10.5-11.0) and CAA-2-28(4.5-5.0) was analyzed. The resulting leaching test effluent concentrations are less than the reporting limit of 0.01 mg/L. This reporting limit is less than 10 times the applicable groundwater cleanup level for cadmium (0.050 mg/L). Therefore, the resulting leaching test effluent concentrations are considered protective of groundwater. Additionally, cadmium was not detected in the groundwater samples collected from any of the monitoring wells. Based on this information, the cadmium-impacted soil beneath the former sump and drainage feature and gutter and settlement cells does not present unacceptable risk to human health.

Pesticides

The pesticides 4,4-DDT and endrin keytone were detected in samples DUP-11 (a duplicate sample collected from the same location as CAA-2-29[5.5-6.0]) and CAA-2-29ox(5.5-6.0), respectively, at concentrations less than established MTCA screening levels. Although the detected concentrations are less than established MTCA screening levels, soil represented by these samples was overexcavated on June 3, 2008 and post-overexcavation confirmation samples were collected Analytical results are pending and will be presented in a forthcoming report. Results from the remaining confirmation soil samples collected from the final limits of the remedial excavations at Cleanup Action Area 2 indicate that the pesticide-impacted soil was successfully removed and transported to Hillsboro Landfill for disposal. No other pesticides were detected in any of the remaining confirmation soil samples collected from the final limits of the remedial excavation. Analytical results are summarized in Table 8.

PCBs

Only one PCB, Arochlor 1260, was detected in 10 confirmation soil samples, at concentrations less than the corresponding MTCA Method A cleanup level of 1,000 µg/Kg (a total value for the sum of all PCBs). Nonetheless, soil represented by each of these samples was removed during overexcavation activities and transported off site to Hillsboro Landfill for disposal. The results of the confirmation soil samples collected from the final limits of the remedial excavations indicate that the PCB-impacted soil was successfully removed and transported to Hillsboro Landfill for disposal. No other PCBs were detected in any of the confirmation soil samples collected from the final limits of the remedial excavation. Analytical results are summarized in Table 9.

6.7.2.4 Backfill Activities

Each of the remedial excavations was backfilled to the existing grade using clean excess soil that was removed from Cleanup Action Area 3. Backfilling was conducted in accordance with the backfilling procedures outlined in Appendix A.

6.8 CLEANUP ACTION AREA 3 - FORMER FUELING AREA

This area is shown on Figures 2, 9, and 10. The area included:

- The former fueling facilities (the 8,000-gallon duel compartment aviation fuel UST, dispenser and associated piping)
- Two septic tanks
- Two dry wells
- Associated piping

The 8,000-gallon duel compartment UST was constructed of fiberglass and was connected through underground piping to a dispenser located to the northeast of the tank. The top of the tank was approximately 5 feet BGS) and the bottom of the tank was approximately 13 feet BGS. The layout of the fueling system is shown on Figure 9.

Two septic tanks were identified immediately east of the former Insurance Hangar building. One of the septic tanks was connected via underground piping to an active dry well and one was connected to an abandoned dry well. The active dry well (identified as dry well-2) was constructed of two perforated concrete collars measuring approximately 4.5 feet in diameter. The total depth of the active dry well was approximately 5 feet. The abandoned dry well that was filled with soil (identified as dry well-3 prior to current activities) was constructed of two perforated concrete collars measuring approximately 4.5 feet in diameter. The total depth of the formerly abandoned dry well was approximately 12.5 feet. Coarse rounded drain rock was observed surrounding the exteriors of each dry well. The layout of the septic system identified at Cleanup Action Area 3 is shown on Figure 9.

6.8.1 Non-Excavation Activities

6.8.1.1 UST and Dispenser Removal

On March 27, 2008, Belfor Environmental decommissioned the 8,000-gallon duel compartment aviation fuel UST. A copy of the 30-Day Notice of Intent to Decommission is included in Appendix D. A copy of the Underground Storage Tank Site Check/Site Assessment Checklist is also presented in Appendix D. In addition, a Clark County Fire Marshal permit was obtained prior to on-site activities (Appendix D). Belfor Environmental summarized the decommissioning activities in a stand alone report that has been submitted to Ecology under separate cover (Belfor, 2008).

During decommissioning activities, a concrete slab was removed from the soil covering the top of the tank. The overburden soil was removed above the top of the tank and the piping was exposed. The UST was strapped to concrete forms below the tank. The straps were cut and the tank was removed from the excavation.

Approximately 7 gallons of aviation fuel was present in the southern compartment of the tank, and the northern compartment was empty. During excavation activities, the southern end of the tank was inadvertently ruptured and soil and pea gravel backfill entered the tank. Once the tank was removed from the excavation, the contents were removed and the fuel was solidified using oil absorbent floor dry, encapsulated in visqueen and ultimately transported to Hillsboro Landfill for disposal.

After the tank was removed from the excavation, the tank and excavation were observed for signs of a release. The tank did not contain any visible holes, except for the above-referenced puncture that occurred during decommissioning activities. Field screening evidence of petroleum impacts were not observed in the pea gravel backfill or the native soil in the excavation. Belfor Environmental collected soil samples as part of the UST decommissioning activities and submitted them for analysis of hydrocarbon identification by method Northwest TPH-HCID. No petroleum hydrocarbons were qualitatively detected in any of the samples submitted for analysis. Based on the condition of soil in the vicinity of the UST and the UST itself, the petroleum-impacted soil at Cleanup Action Area 3 was not related to the recently decommissioned UST, but from another source, most likely the formerly removed unleaded gasoline USTs that were reportedly installed at the project site in 1972 and 1978.

The dispenser was dismantled and the fuel remaining in the product lines was removed solidified. The dispenser was transported with other scrap metal to Quantum Resources Recovery Inc. for recycling. The UST was transported to Hillsboro Landfill for recycling. A copy of the UST disposal receipt is presented in Appendix D.

6.8.1.2 Septic System Decommissioning

Ted-Dee Bear Septic Service completed pumping the contents from the septic tanks on March 17, 2008. The septic tanks were subsequently abandoned by demolishing the concrete lids and filling the void spaces with clean excess soil that was removed from Cleanup Action Area 3 and/or pea gravel. Disposal receipts are included in Appendix E.

Bones Construction decommissioned the entire active dry well, the entire abandoned dry well, and all of the associated piping on March 18, 2008. No liquid or sludge was observed within either dry well or piping. Coarse rounded drain rock was observed surrounding the dry wells during the decommissioning activities. The concrete rubble generated during the decommissioning activities was recycled on-site.

6.8.2 Excavation Activities

6.8.2.1 General

Remedial excavations at Cleanup Action Area 3 included two isolated excavations associated with each of the dry well decommissioning activities and one large excavation associated with the former fueling area that encompassed the recent UST decommissioning excavation and the former unleaded gasoline USTs tank cavity. The final limits of these remedial excavations are shown on Figures 9 and 10. Excavation and sample collection was conducted in accordance with the field procedures outlined in Appendix A.

The vertical depth of the excavation associated with the active dry well (dry well-2) was approximately 10 feet BGS. The vertical depth of the excavation associated with the abandoned dry well (dry well-3) was approximately 10.5 feet BGS. Confirmation soil samples were collected from the sediment within the active dry well, from the soil within the abandoned dry well, and from native soil beneath each dry well. Confirmation soil samples were analyzed for the contaminants presented in Table 1 by the methodology presented in Table 1. Additionally, soil samples were collected from the material temporarily stockpiled during the decommissioning

activities prior to being transported off site to Hillsboro Landfill for disposal. The samples collected from the stockpiled material were analyzed for the same constituents as the confirmation soil samples collected from the limits of the remedial excavations.

The extent of impacted soil beneath the former fueling area was limited by an impermeable iron crust located at a depth ranging between 14 and 15 feet BGS. In general, the vertical depth of the excavation associated with the former fueling area ranged between approximately 15.5 and 16.5 feet BGS. Two isolated areas within the initial excavation required overexcavation. Confirmation soil samples were collected from the sidewalls and base of the final excavation limits and analyzed for the contaminants presented in Table 1 by the methodology presented in Table 1. The final limits of the remedial excavation and confirmation soil sample locations for Cleanup Action Area 3 are shown on Figure 10. Additionally, soil samples were collected from the temporarily stockpiled excess clean overburden material removed during the remedial excavation activities prior to being reused as backfill material. The samples collected from the stockpiled material were analyzed for the same constituents as the confirmation soil samples collected from the limits of the remedial excavation.

6.8.2.2 Field Screening Results

PID readings from the vapor headspace tests performed on confirmation soil samples submitted for chemical analysis from Cleanup Action Area 3 ranged from 0.0 to 6.2 ppm. No visual or sheen evidence of contamination was observed in any of the confirmation samples submitted for chemical analysis. The field screening results are summarized on Table 10.

6.8.2.3 Analytical Results

Gasoline-, Diesel-, and Heavy Oil-Range Hydrocarbons

Gasoline-range hydrocarbons were quantitatively detected in soil sample CAA-3-22 (14.5-15.0) at a concentration significantly less than the corresponding MTCA Method A cleanup level of 100 mg/Kg. Oil-range hydrocarbons were qualitatively detected in confirmation soil samples Stockpile-2 and Piping-1-(3), but only quantitatively detected in sample Stockpile-2 (at a concentration significantly less than the corresponding MTCA Method A cleanup level of 2,000 mg/Kg). Nonetheless, the gasoline- and heavy oil-range hydrocarbon impacted soil represented by each of the samples was removed during overexcavation activities and directly transported off site to Hillsboro Landfill for disposal. The results of the confirmation soil samples collected from the final limits of the remedial excavations indicate that the petroleum-impacted soil was successfully removed and transported to Hillsboro Landfill for disposal. Petroleum hydrocarbons were not detected in any of the remaining confirmation soil samples collected from the final limits of the remedial excavation. Analytical results are summarized in Table 10.

VOCs

One oxygenate, methanol, was detected in soil sample CAA-3-33 (15.5-16.0) at a concentration significantly less than the corresponding MTCA Method B protective value of 40,000,000 µg/Kg. Nonetheless, soil represented by this sample was removed during overexcavation activities and directly transported off site to Hillsboro Landfill for disposal. The results of the confirmation soil samples collected from the final limits of the remedial excavations indicate that the